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Universities and RIS3: the case of Catalonia and the *RIS3CAT Communities*

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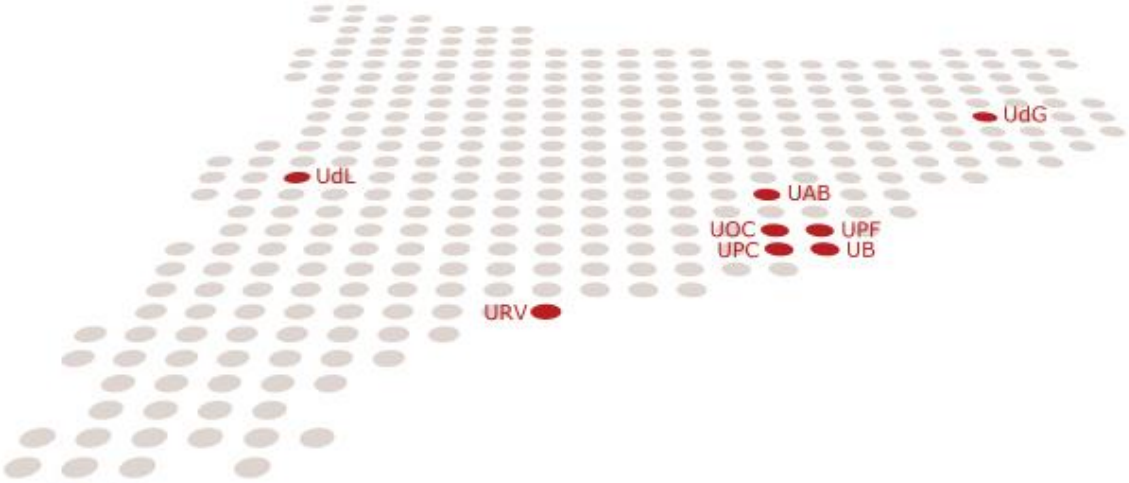

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Abstract
Universities and RIS3: the case of Catalonia and the RIS3CAT Communities
This report, based on collaboration between the JRC-IPTS and the Catalan Association of Public Universities (ACUP), contributes to the debate on the role of Higher Education Institutions in RIS3 by exploring the case of Catalonia. The document first assesses the role of universities in the overall design and implementation of the Catalan RIS3 and EDP, and then goes in depth into one of its key instruments, namely the RIS3CAT Communities. The latter provide a platform for triple-helix stakeholders to interact and agree on a set of collaborative projects, which can be partially funded by public resources. Based on in-dept interviews with senior university managers and desk-based research, the study highlights how HEIs are evolving and adapting to the new policy environment and identifies the advantages and challenges posed by RIS3CAT Communities as a policy instrument.

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Executive summary

Policy context

- There is increasing prominence given to the so called third-mission role of universities and higher education institutions (HEIs)[1] beyond the traditional core functions of teaching and research.
- The new Cohesion policy framework, based around the concept of Smart Specialisation Strategies (RIS3), reinforces this trend placing Universities as key actors for regional development.
- This report, based on collaboration between the JRC-IPTS and the Catalan Association of Public Universities (ACUP), contributes to the debate on the role of Higher Education Institutions in RIS3 by exploring the case of Catalonia.
- Catalonia is home to several public universities which display remarkable differences in terms of size, scientific specialisation and relationship to the territory. As such, it provides the opportunity to test how different types of Higher Education Institutions (HEIs) can respond to the RIS3.
- Catalonia's Smart Specialisation Strategy (RIS3CAT) lays the framework under which the Government of Catalonia carries out RDI (Research Development and Innovation) policies in the current programming period (2014-2020) and supports the generation and development of innovative projects aiming to further develop the region.
- RIS3CAT establishes that the sectors defined as strategic for Catalonia are structured into *RIS3CAT Communities*. The latter provide a platform for triple-helix stakeholders to interact and agree on a set of collaborative projects, which can be partially funded by public resources.

Key conclusions

a. Conclusions related to the role of different type of universities within the RIS3 and, hence, their third mission activities

- Catalan universities are now actively engaging with stakeholders for research, innovation and other third mission activities within (and beyond) the RIS3 framework.
- Catalan Universities outside the metropolitan area of Barcelona, which have developed an organizational structure suited to engage with the territory, have been able to exploit these mechanisms to make the most of the RIS3CAT Communities.
- Whilst at the strategic level HEIs are adapting to the new demands they face, the individual incentives for career progressions do not yet reflect this shift. There are growing but insufficient incentives for researchers to invest in "third mission" activities.

b. Conclusions related to a first and partial evaluation of the RIS3CAT Communities as a policy instrument

- RIS3CAT Communities appear as a valuable instrument to engage stakeholders in a continuous EDP. They are also valuable to emphasize the role of universities as strategic partners in regional development.
- By taking part to the Communities, Catalan universities have developed a strategic vision of the region and its key sectors and met partners that were previously out of their radium for research and innovation activities.
- The instrument aims at being sustainable over time, allowing stakeholders to build links that will outlive the Community's administrative duration.

[1] In this report we use the terms "university" and "HEI" as synonyms.

- Nevertheless stakeholders would have benefitted if clearer guidelines for interaction had been provided by the public sector. These would have made it easier for HEIs and other actors to position themselves strategically within the RIS3CAT Communities. In particular, it was noted that for universities it is easier to provide human resources, than financial resources. SMEs also appear cash-short hence in a more difficult position to contribute and take part to the communities.
- Last but not least, the RIS3CAT Communities offer an interesting case of bottom-up engagement in monitoring activities. It will be interesting to keep observing the development of monitoring indicators

Main findings

The study allows **extrapolations relevant to other EU regions** and to furthering the conceptual RIS3 framework.

- The EDP must be intended as continuous process that goes from priority identification to the definition and implementation of policy instruments, aimed at pursuing innovative and collaborative projects.
- As such, the EDP requires the government to act as or provide a platform for stakeholders' interaction and RIS3 implementation. RIS3CAT Communities are a good example of this new role of government and one from which other regions can take inspiration.
- In RIS3 is not sufficient to engage stakeholders at the planning level. It is beneficial to consult stakeholders in the actual definition of policy instruments, in order to be able to identify potential bottlenecks and ensure that each stakeholder is well positioned to take part and contribute to the process with its resources and capabilities.
- In this respect, it is important to stress that universities, SMEs and large firms, have different strengths and financial regimes. Such heterogeneity should be better exploited, without limiting cash-short actors.
- Whilst the road ahead is challenging for HEIs, which face a policy environment that is changing faster than their organizational culture, universities are showing both resilience and leadership in taking up the challenge of being a key actor for local development. The RIS3 approach builds coherently on this evolution and has the potential to leverage it for the benefit of regions and local communities.

Related and future JRC work

The JRC-IPTS is currently planning to engage further in the issue of Higher Education and RIS3 and the experience of this study will help frame future activities.

1. Introduction

There is increasing prominence given to the so called third-mission (Laredo, 2007) role of universities and higher education institutions (HEIs) , beyond the traditional core functions of teaching and research, by national, regional and local governments as well as supra-national bodies such as the European Commission and the OECD (E3M, 2012). This widened role has been highlighted in the agenda adopted by the Commission in September 2011 for the modernisation of Europe's higher education systems and has been promoted by the OECD in its Reviews of Higher Education in Regional and City Development which began in 2005 (European Commission, 2011, OCDE, 2007).

The new Cohesion policy framework, based around the concept of Smart Specialisation Strategies (RIS3), reinforces this trend placing Universities as key actors for regional development (Kempton et al., 2013).

Regional Smart Specialisation Strategies (RIS3) are aimed at developing national/regional competitive advantages following a vertical prioritisation logic based on the bottom-up identification of a limited set of priorities where regions believe they have potential to obtain a comparative advantage. Priorities are identified and pursued through the interaction of stakeholders across the quadruple helix of government, industry, academia and society at large. This is because entrepreneurial knowledge is most often distributed across a regional system. This cyclical and recursive process of identification and prioritisation is referred to as an Entrepreneurial Discovery Process (EDP). In this context, universities and regions have a unique opportunity to form partnerships, together with the business sector, to maximise the use of European Structural and Investment Funds (ESIF), and particularly the European Regional Development Fund (ERDF), hence contributing to the local knowledge-based development.

Although universities are placed in a good position to contribute significantly to the process of local development, it is difficult to evaluate whether and how such potential can be untapped (Kempton et al., 2013).

This report, which is based on collaboration between the JRC-IPTS and the Catalan Association of Public Universities (ACUP), contributes to this debate by exploring universities' role within RIS3 in the case of Catalonia. The paper first assesses the role of universities in the overall design and implementation of the Catalan RIS3 and EDP, and then goes in depth into one of its key instruments, namely the RIS3CAT Communities.

Catalonia's Smart Specialization Strategy (RIS3CAT) lays the framework under which the Government of Catalonia carries out RDI (Research Development and Innovation) policies in the current programming period (2014-2020) and supports the generation and development of innovative projects aiming to further develop the region. RIS3CAT establishes that the sectors defined as strategic for Catalonia are structured into RIS3CAT Communities. Each community is expected to carry out initiatives to facilitate collaboration among sectorial stakeholders, to improve competitiveness and to generate solutions to society's changing needs. These communities will be one of the key tools through which universities and other stakeholders in strategic sectors are able to apply for ERDF-funded grants.

The case of Catalonia is particularly interesting as the region is home to several public universities displaying remarkable differences in terms of size, scientific specialisation and relationship to the territory. In this respect Catalonia provides the opportunity to test how different types of Higher Education Institutions (HEIs) can respond to the RIS3. The report is organised as follows: section 2 discusses the concepts of EDP and RIS3 in relation to universities' third mission; section 3 describes the Smart Specialisation Strategy of the region, i.e. the RIS3CAT, and pays particular attention to the RIS3CAT Communities as one of the instruments to implement it; section 4 gives a brief overview of the public universities in Catalonia included in the fieldwork (those part of ACUP association); section 5 describes the methodology of the study whereas section 6

provides the results of our fieldwork; finally section 7 concludes and provides policy recommendations.

2. Conceptual framework – RIS3, EDP and universities' third mission

The Europe 2020 Strategy, established by the European Commission, aims at delivering growth through smart (a more effective investments in education, research and innovation), sustainable (a low-carbon economy) and inclusive (focusing job creation and poverty reduction) strategy (European Commission, 2010).

In order to tackle unemployment, poverty and climate change the European Commission asked member States and European regions to establish their own Smart Specialisation Strategies on research and innovation as a prerequisite to access structural funds in economic areas with a strong impact on economic growth and social development for the 2014-2020 period.

The concept of the Entrepreneurial Discovery Process is one of the pillars of RIS3. It is an inclusive and interactive mainly bottom-up process in which participants from policy, business, academia, as well as other sectors, engage with each other to identify potential new activities and opportunities. It is based on the recognition that the public sector does not have innate wisdom or the ex-ante knowledge of future priorities and that stakeholders' engagement is essential to establish realistic directions for local development.

The EDP is necessary in the first instance to identify on which areas to focus innovation-policy intervention and, secondly, to ensure that the region is able to build competitive advantage in such areas, potentially revising them as market evolves.

For the purposes of this report, it is useful to distinguish between two dimensions of EDP:

1. EDP as a taking stock moment: with this we refer to the legal need, according to the ERDF regulation, to identify a set of priorities within the RIS3 in order to access ERDF funds for research and innovation.

2. EDP as a flow: with this we refer to the need to empower continuous stakeholders' interaction with the aim to innovate in given priority areas, whilst reflecting on market opportunities hence being ready to re-assess and revise investment-priorities previously identified. In other words, following the identification of priorities, the EDP continues through the definition, implementation and monitoring of the related instruments.

Universities are one of critical "entrepreneurial actors" in the EDP, all the more as they are increasingly required to reconsider their role in society and engage in a broad set of activities that go beyond the traditional functions of teaching and research. Such activities, grouped under the term "third mission" comprise, broadly speaking, three streams of actions covering (a) innovation, technology and knowledge transfer, (b) continuing education and life-long learning and (c) broader social engagement.

All of these require an important organisational and governance shift in universities. On the one hand, universities are required to be more directly engaged with market and entrepreneurial dynamics, on the other, it is paramount for them to become conscious of

their role as pivotal stakeholder, capable to lead processes of local and regional development in economic and cultural terms.

It is clear that the ability of universities to make the most of the opportunities offered by RIS3 and the EDP is strongly related to their capacity to engage in third mission, building upon their scientific and territorial strengths. As we shall see throughout, Catalan universities have adapted to the current challenges and identified interesting ways to engage with the territory and the business community.

3. The RIS3CAT and the RIS3CAT Communities

Following the request of the European Commission, the Catalan Government launched, in January 2013, the operations that led to the Research and Innovation Smart Specialisation Strategy for Catalonia (RIS3Cat). The final RIS3CAT was submitted for approval in January 2015. 2 The RIS3CAT builds on the Catalan Strategy 2020 (Estratègia Catalana, 2020) approved on March 2012 and is built around the goals and framework policy strategy announced in the Europe 2020 Strategy.

The RIS3CAT contains a SWOT analysis of Catalan economy, which detects the economic players and proposes a vision, four strategic goals and four action drivers. The priority-identification process (i.e, the EDP as a "Stock taking moment") relies on a set of instruments such as public consultation, an expert group, workshops, etc. which engaged innovation and research actors.3

Figure 1 below summarises the RIS3CAT's architecture. It shows that the strategy revolves around four strategic objectives and their related pillars of action, namely Leading sectors, Emerging activities, Cross-cutting technologies and Innovation environment.

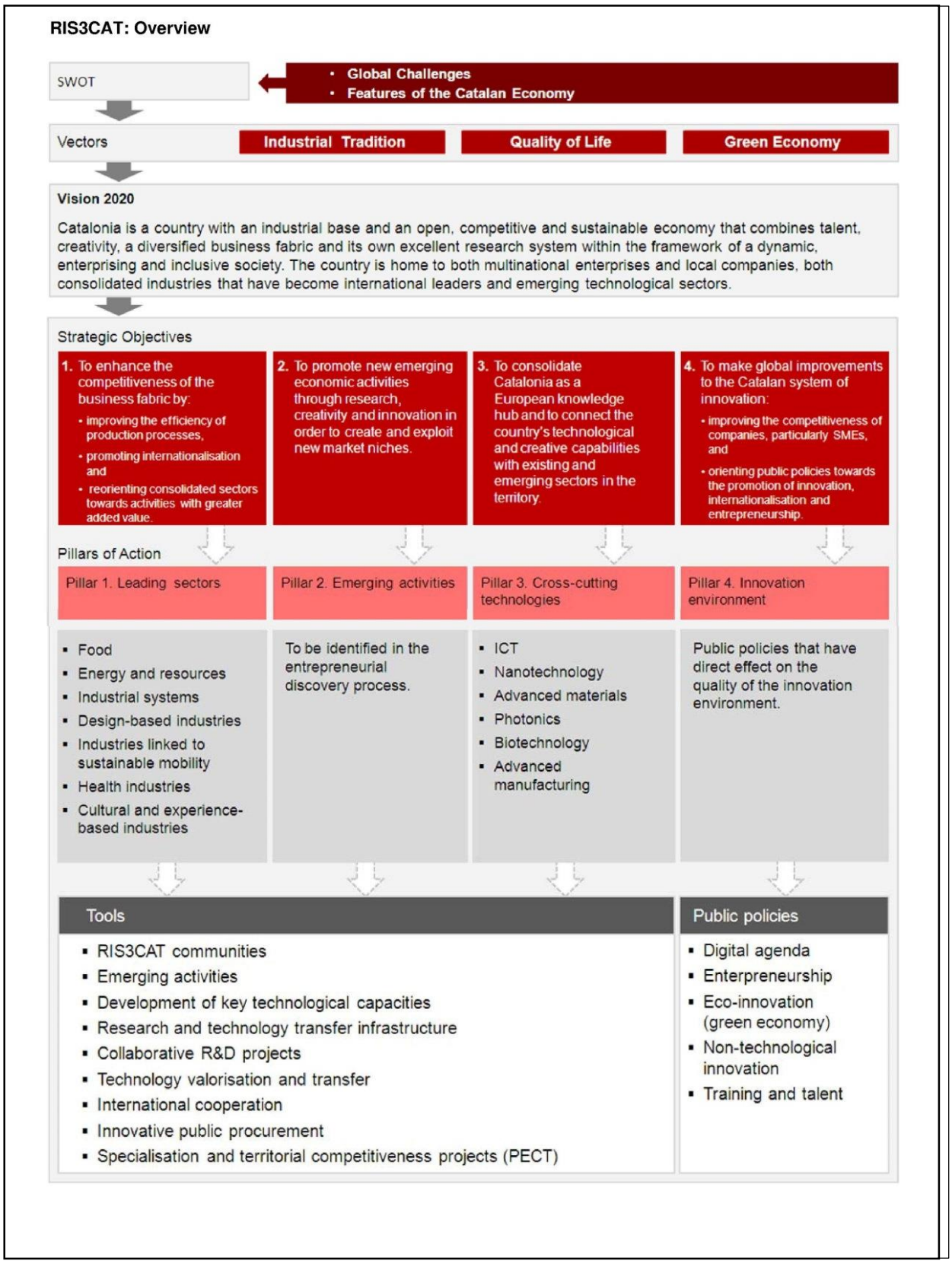
The RIS3Cat also identifies several policies and tools, including the RIS3CatCommunities (Comunitats RIS3Cat), which are at the core of this paper and are described in more detail in the following paragraph.

It is expected that Catalonia will receive almost 2,000 M€ in European funds (mainly FEDER and FSE) for the period 2014-2020.

[2] http://catalunya2020.gencat.cat/web/.content/85_catalunya_2020/documents/arxius/07_PO_FEDER_CATALUNYA_2014_2020.pdf

[3] http://catalunya2020.gencat.cat/web/.content/85_catalunya_2020/documents/arxius/06_elaboracio_ris3cat_2014.pdf

Figure 1 – Overview of RIS3CAT



Source: RIS3CAT (2015) available online at:
http://catalunya2020.gencat.cat/web/.content/85_catalunya_2020/documents/arxius/12_ris3cat_2014.pdf

3.1 RIS3CAT Communities[4]

The RIS3CAT Communities are one of the main instruments to implement the RIS3 in Catalonia. They are groups of companies and stakeholders in the research and innovation system that define and pursue an action-plan of research and innovation activities. They receive accreditation from the Government of Catalonia through a competitive process that allows them to obtain grants from the ERDF Operational Programme (OP) to co-finance their action plans.

A total of 3 calls are foreseen over the 2015-2017 period to accredit 15 communities over the course of the ERDF OP programming period, operating in the leading sectors identified in figure 1, namely:

- Food,
- Energy and resources
- Industrial systems
- Design-based industries
- Industries linked to sustainable mobility
- Health
- Cultural and experience based industries

Potential participant to the communities are public and private stakeholders in the research and innovation system and companies with operational bases in Catalonia. The communities must be formed by at least eight members, including stakeholders from the private and the research and innovation system. The action plans are to be co-financed through private and public funds, including those coming from the ERDF OP.5 The action plans can include the following type of projects:

1. Major industrial research and experimental development projects
   - R&D projects focused on industry that include activities involving applied research, experimental development or the development of industrial demonstrators that are particularly relevant to the sector.
   - Technology valorisation projects that attribute commercial value to the store of knowledge accumulated by innovation system stakeholders as it is transferred to the industrial production system.
   - Actions to evaluate and validate experimental prototypes and production systems, pilot schemes, new products or services, or advanced methods and materials.
2. Technical and scientific facilities
   - Facilities such as laboratories and pilot plants to provide industry with tools for industrial validation.
   - Development of equipment and instruments of major scientific facilities. These may promote or complement other facilities that already exist in different European regions with the aim of establishing strategic synergies.

[4] This paragraph builds upon the description provided in http://catalunya2020.gencat.cat/web/.content/85_catalunya_2020/documents/angles/arxius/pa_ris3cat_201511_en.pdf

[5] The estimated value of the projects resulted from this instrument is of 200mln Euros, of these 72mln will be provided by the ERDF OP.

3. Interregional cooperation projects in the field of innovation
    - Actions or projects with organisations and companies in other European regions and EU countries, such as ad hoc bilateral R&D programmes, public-private partnerships (PPP), activities organised by knowledge and innovation communities (KICs), joint technology initiatives, etc.
4. Innovation projects in the fields of processes and organisation
    - Actions developed by SMEs with the goal of improving production or supply methods or significantly improving business practices, organisation in the workplace and foreign relations.

Interestingly the RIS3CAT Communities need to define their own governance systems, which need to coordinate and guide different types of members with different interests. As part of that RIS3CAT are also required to identify indicators for monitoring and evaluation purposes. As such, the policy instrument RIS3CAT Communities is effectively constructed as a platform to enable stakeholders, within a given sector, to interact, priorities and monitor areas of investment. In this respect, they enable the ED process to flow over time and provide a suitable framework to explore the role of universities in the Entrepreneurial Discovery Process in a practical way.

The RIS3CAT also foresees the organisation of PECTs (Projects for Territorial Specialisation and Competitiveness) which, as instruments, provide a complementary way to the RIS3CAT Communities to ensure the continuity of the EDP. In line with the RIS3CAT Communities, PECTs are associations of stakeholders in the innovation system which need to pursue an action plan. Whilst the RIS3CAT Communities are organised around leading sectors, the PECTs are organised around geographical areas. They are initiatives promoted by stakeholders in the territory and led by local public bodies hence the element of local territorial development is more prominent and features among its key objectives. At the time the fieldwork for this report was carried out, PECTs had not yet officially started, hence they are not covered in this study.[6]

4. Catalan universities: the fieldwork

The Catalan Association of Public Universities, a partner in this study, comprises the following eight institutions:

- Universitat de Barcelona
- Univesitat Autonoma de Barcelona
- Univesitat Politecnica de Catalunya
- Univesitat Pompeu Fabra
- Universitata de Girona
- Universitat de Lleida
- Universitat Rovira I Virgili
- Universitat Oberta de Catalunya

With the exception of Universitat de Lleida, all the universities took part in our study and allowed the JRC-IPTS to have in depth interview with a senior university manager.

[6] Nevertheless, they appear as equally interesting and future research should aim at comparing them to the Communities.

As shown in table 1, Catalan public higher education institutions show remarkable differences among themselves, which are critical to understand their role within the S3process and the *RIS3CAT Communities*.

Three of the universities in the metropolitan area of Barcelona, namely Universitat de Barcelona, Universitat Autonoma de Barcelona and Universitat Politecnica de Catalunya account for 54% of undergraduate students and 59% of postgraduate students. The first two cover a wide range of disciplines in their teaching and research, whereas the latter is focused on engineering, architecture and science. Universitat Pompeu Fabra, also in Barcelona, is smaller in scale and younger. It has a smaller remit as its eight departments are concentrated in the field of health and life sciences, ICT and social sciences and humanities. It has a strong international inclination.

The Universities of Lleida, Girona and Rovira I Virigili (Tarragona) are located in other provinces of Catalonia. They were created in the 1990s though their origin dates back to historical scholarly institutions denominated "Estudi Generals". These smaller institutions are, by mission, more directly engaged in their socio-economic surroundings. Such local dimension, however, does not preclude them from positioning themselves in the international arena. Rather, it provides opportunities for specialisation and competitive advantages, hence helping them define the appropriate global niches.

A particular case is the Universitat Oberta de Catalunya. It is the most recently founded university of ACUP. It is online-based and pursues e-learning approaches. Formally located in Barcelona, its community of over 50,000 students is spread across the whole national territory and beyond. UOC keeps research and innovation at the heart of its works and, whilst actively engaged in "third mission" activities, its online-nature makes it more difficult, compared to the other ACUP members, to engage with local stakeholders.

Table 1 - Key characteristic of Catalan universities

	Universitat de Barcelona	Universitat Autonoma de Barcelona	Universitat Politecnica de Catalunya	Universitat Pompeu Fabra	Universitat de Girona	Universitat de Lleida	Universitat Rovira I Virgili	Universitat Oberta de Catalunya (UOC)
Location	Barcelona	Barcelona	Barcelona	Barcelona	Girona	Lleida	Tarragona	Online
Year of foundation	1450	1968	1971	1990	1992	1991	1991	1994
Undergraduate	46449	28509	28804	11969	13682	8779	11886	39031
Postgraduate Students	10118	5735	5090	5235	1374	1295	2151	4331
Academic and research staff	5312	3629	2431	558	1155	997	921	372
Collaborating lecturers -UOC only								3406
Undergraduate	66	81	68	21	41	31	37	25
Master programmes	140	84	65	25	41	41	46	46
PhD programmes	73	67	51	9	11	9	37	2
Faculties and schools	19	14	17	8	10	9	12	
Departments	106	57	42	8	24	26	24	
Research centres	30	27	16	7	11	5	14	2
Officially recognised research groups	243	220	197	63	42	49	59	14

Source: ACUP Report Universities of Catalonia http://www.acup.cat/sites/default/files/universities-catalonia-2014.pdf

5. Methodology

The study adopts a qualitative methodology based on in-depth interviews. Through the support of ACUP, the JRC-IPTS contacted the relevant Rectorates of each university and arranged an in-depth interview with key representatives of the university management. These were often Vice-rectors in the areas of research, innovation and knowledge transfer.

The interview-guide (annexed to the report in Spanish and in English) was sent to the interviewees in advance. The interviews were held on the phone between November 2015 and January 2016 in either Catalan or Spanish. They lasted between 45 and 60 minutes covered three broad areas:

1) Participation in and evaluation of the S3 Process as a whole, distinguishing between the priority-setting and the implementation phase

2) Participation in and evaluation the EDP process, addressing its compatibility with University strategies and incentive structures

3) Participation and evaluation of the *RIS3CAT Communities* as an instrument, from its design to its deployment.

The 8 public universities were contacted, of these seven accepted to participate in our study, whereas Universitat de Lleida did not respond to our request.

The field-work was complemented with desk research about the Catalan RIS3 strategy and the local research and innovation system.

6. Results

6.1. Universities participation in the RIS3 process: an overall good experience

The participation of universities in the S3 process can be split in two parts:

1. The identification and definition of RIS3 priorities
2. The implementation of the *RIS3CAT Communities* as an instrument.

As for point 1 all the university-representatives interviewed agreed on the fact that their engagement in the initial stage was minimal. Universities were kept informed of the process by the regional authority but they were not substantially involved in choosing the priority areas, nor explicitly consulted in relation to their competences.

The first stage of priority-identification (i.e., the EDP stock-taking moment) was thus perceived as largely top-down by all interviewees, a trait that –according to the interviewees- presented both positive and negative aspects. As for the former, it was pointed out that opening-up the discussion to universities and stakeholders too early could have made it difficult to reach consensus. As of the latter, universities perceived that the priorities were defined extremely broadly and without a clear understanding –from the government– of where each academic institution retained pockets of scientific excellence.

On the other hand, the engagement in the RIS3 and the EDP increased with the launch of the *RIS3CAT Communities* (see section 6.2 and 6.3 below). Through those, universities were co-responsible –with the other stakeholders- for the articulation of each investment priority into action-plans and their related governance and monitoring systems. Whilst the Communities provided a valuable platform for interaction, universities did not always feel that it was easy to receive adequate space and recognition. This is because, depending on the sector, the needs and capacities of different actors (i.e. universities, large firms, SMEs, technology centres) were not immediately compatible. This, on occasions, demanded strong negotiations before trust could be built and consensus could be reached over the action plans.

With the caveats above, the RIS3 experience is considered positive for universities and it is seen as in line with the changes in the University system experienced in the previous decade: all universities pointed to the similarities between the RIS3 process, the *RIS3CAT Communities* and the focus on collaboration, partnerships and third-mission activities in H2020, the KICs or other various national or EU initiatives.

6.2. Entrepreneurial discovery process: still a trade-off between institutional strategy and individual career progression

As mentioned above, the concept of Entrepreneurial Discovery Process (EDP) refers to the active engagement of stakeholders in the identification of investment priorities and, subsequently, in the definition, implementation and monitoring of the related instruments. In practical terms, in Catalonia, the term refers to the set of activities that led to the definition of the RIS3CAT and its leading sectors, as well as to the formulation and implementation of its key instruments (*RIS3CAT Communities* in particular).
Whilst not all the interviewees are familiar with the term "EDP" in itself, they are all familiar with many facets of the concept. The interviewees unanimously perceive the EDP as part of the broader shift in University-management that places increasing relevance on collaboration with the private sector, innovation, technology transfer and third mission.

Whilst the EDP is not considered conceptually new, it has two important novel elements: on the one hand, the fact that the principles of technology transfer, third mission and territorial engagement are packaged in policy instruments which require precise action-plans and governance systems provided a sound structure to the strategic discussion among stakeholders; on the other, the need to focus on regional (in the case of *RIS3CAT Communities*) or even sub-regional (in the case of PECTs) stakeholders stimulated a dialogue between actors that had not interacted before (especially SMEs).

Interestingly, such local dimension is not perceived to be at odds with the increasing global-pull that higher education institutions face. Universities agree that the local engagement pursued through the RIS3 is complementary with the need to be internationally recognized and to compete for funding, staff and students in the global arena. The key is for each institution to align the opportunities for collaborations offered by local and international stakeholders into a coherent strategy.

If, at the institutional level, engagement in innovative activities with local actors is compatible with the university strategy, this is not the case at the level of the individual researcher for whom career progression is almost exclusively linked to scientific

productivity. Whilst collaborative research projects and territorial engagement can indeed lead to scientific publications, hence advancing the individual academic career, they also involve a substantial organizational effort –in terms of outreach activities as well as necessary management and bureaucracy– which is more difficult to capitalize for career progression.

Although this tension remains substantially unresolved, the interviewees show a clear awareness of the situation and are exploring ways to align individual and institutional incentives. On the one hand, participation in collaborative projects -whether or not within a RIS3CAT Community- is increasingly taken into account during evaluations. On the other, universities are devising other ways to minimise the time researchers' devote to activities that do not increase research or patent productivity.

An interesting example, in this respect, is that of the "Campus Sectorials" of the University of Girona (described in more detail in section 6.3): these are independent entities which, among other things, are tasked with (a) identifying funding sources for research and innovation projects, (b) identifying partners and (c) taking care of all the related administrative and managerial tasks. In so doing, they effectively free researchers and allow them to concentrate on the part of their job that is most relevant for career-progression.[7]

As for the implications of the EDP on teaching activities, the interviewees agree that the impact is, at most, indirect and impacts only the research-students that may be directly involved in collaborative projects. Interaction with stakeholders cannot, at this stage, influence the curricula of bachelor's degree, which are largely defined by the national government. Nevertheless, the EDP has stimulated new dynamics and dialogue across stakeholders which can potentially generate demand for new competences and shape learning programmes in the future.

6.3 Participation in RIS3CAT Communities: a flexible instrument for resilient HEIs

The high degree of heterogeneity among universities and communities, have given rise to different patterns of participation and engagement.

Three set of observations came out convincingly from the interviews and relate to:

1) The process of designing of *RIS3CAT Communities*

2) The process of forming the *RIS3CAT Communities* balancing the needs of different stakeholders

3) The flexibility of the instruments and of the universities which generated interesting configurations to make the most of the opportunity

[7] Remarkably "third-mission" activities that are not linked to research projects (such as engagement in local events, life-long learning, etc.) remain more difficult to monitor and evaluate for career progression. The case is similar to activities related to academic entrepreneurship, such as patenting and spin-off activities.

As for the first aspects, in general, universities perceive RIS3CAT Communities as a useful platform for interaction and collaboration. However, on the one hand, the Communities were in some cases perceived as too broad in their remit, reflecting the insufficient prioritization process undertaken at the regional level (i.e. the EDP as a stock-taking exercise); on the other, several universities pointed out that the instrument could have benefited from more operational directives, that is better guidelines in relation to financial issues, eligible cost, roles and requirements of participation, calendar of calls, allocation of personnel, etc. This could have been partially avoided if universities and other stakeholders had been sufficiently involved in the design itself of the instrument. Had this been the case, they would have been able to share crucial lessons learnt from previous experiences that have traits in common with the RIS3, such as the Campus de Excellencia or Clusters Emergents.[8] As a consequence, certain universities felt that it some demanding learning process was needed to position themselves within the instrument and appreciate how to exploit its full potential.

As for the second point, the fieldwork revealed that the process of forming the communities was done on-ad hoc basis. At the top level, universities spread openly their presence across communities through a process of consensus-building, negotiating their role as a leader or a simple participant on the grounds of their scientific and technological expertise. Within individual institutions, different practices were adopted to engage the research community. In general the vice-rectorates acted as catalyst for the research community and on the one hand engaged directly with pivotal researchers or research groups within a given field, on the other ensured kept faculty-members as whole informed of the process through channels such as emails and/or meetings. The negotiations for the action-plans and governance systems revealed the bottlenecks implicit in the design of the instrument. Overall, the RIS3CAT Communities seem to favour actors capable of providing cash more than other resources (personnel), that is large or multinational firms. This is problematic for Universities, which are better placed to contribute with human resources or infrastructure and has made it difficult, in certain cases, for their strategic role to be recognised and for universities not to be perceived exclusively as research providers. SMEs also suffered from this bias, with financial constraint reinforcing the strong cultural barrier that prevents them to engage in innovation partnerships and research activities. Indeed, it is not easy from them to clearly identify the advantages of their participation to the Communities and, in some cases, SMEs decided not to join.

Finally, the interviewees also revealed different strategies through which universities adapted to the opportunities offered by the RIS3CAT Communities. For the universities outside the metropolitan area of Barcelona, such as University of Girona and University Rovira i Virgili, it was easier to engage in the Entrepreneurial Discovery Process (that is in the articulation of the various RIS3CAT Communities) through the very same tools they have developed to engage with the territory. As mentioned before, the University of Girona has been developing the so-called "Campus Sectorials". These are teams aimed at increasing the social and economic impact of the university by acting as bridges between the academy, the local productive sector, the institutions and society. They act, effectively, as demand-led knowledge brokers between researchers and business and aim at aligning the needs of the two in order to achieve local knowledge based development. They offer a series of services to firms (both SMEs and larger firms) and they have been extremely proactive in capturing firms' interest. They monitor the sources of funding available and then identify research teams and companies that may benefit from them. They also actively ask firms what type of the skills they would like the university to produce. The advisory board of the campus sectorial includes

[8] Campus de Excellencia and Clusters Emergents are national or regional government initiatives aimed at promoting interaction between the research and business sector.

exclusively non-academics. These Campuses effectively embody apply the concept of entrepreneurial discovery for the University of Girona and have been critical in shaping and driving the University participation in RIS3CAT Communities. In the University Rovira i Virgili (Tarragona) the participation to the EDP was articulated through the University's Foundation (Fundació URV), which is tasked with the objective of promoting the relationship between the University and society though knowledge and technology transfer as well as life-long training. Another body, more directly engaged in territorial engagement, had the same role with PECTs.

In the case of large universities, participation to the RIS3CAT Communities required developing methods for self-examination, to analyse the potential of researchers teams with different characteristics (either more oriented to basic research or to technology transfer). For instance, Universitat Politecnica de Catalunya, which has the strongest record of technology transfer activities in the region and one of the strongest nationally, devised ways to exploit such resources by coordinating the operations between the vice-rectorate for technology transfer and that for research,

In general, the RIS3CAT Communities proved to be a relatively flexible instruments which triggered universities to reflect on their scientific and organizational strengths, adopting a long-term view.

7. Conclusions and policy recommendations

In this report we have analysed the role of Catalan universities in the RIS3 and EDP process as proxied by their participation in the design and implementation of the RIS3CAT Communities.

Our desk-research and fieldwork allows drawing two types of conclusions, covering:

c. the role of different type of universities within the RIS3 and, hence, their third mission activities;
d. a first and partial evaluation of the RIS3CAT Communities as a policy instrument which, in its design, embodies characteristics that are able to stimulate a continuous EDP (i.e. EDP as a flow, in the terminology introduced in section 2)

The region of Catalonia appeared as appropriate for this type of analysis because it offers an interesting mix of reputable higher education institutions, with different characteristics and different relationships with the territory.

As for the first point, the interviews reveal that universities are now actively engaging with stakeholders for research, innovation and other third mission activities within (and beyond) the RIS3framework. This is despite a relatively low involvement at earlier stages of the process. Interestingly, universities outside the metropolitan area of Barcelona, which have developed an organizational structure suited to engage with the territory, have been able to exploit these mechanisms to make the most of the RIS3CAT Communities. However, whilst at the strategic level HEIs are adapting to the new demands they face, the individual incentives for career progressions do not yet reflect this shift. There are growing but insufficient incentives for researchers to invest in "third mission" activities. This warrants the definition of appropriate evaluation criteria and the design of new career-paths which value activities which may underpin, yet are not directly reflected in, scientific productivity.

As for the second point, although the Catalan RIS3 strategy did not particularly narrow the domains of specialisation it its design phase, the RIS3CAT Communities appear as a valuable instrument to engage relevant actors in a continuous EDP. Whilst this paper cannot constitute a complete evaluation of the instrument, it nevertheless indicates that Communities offer an appropriate platform for collaboration among key actors and are also useful to emphasize the role of universities as strategic partners in regional

development. By taking part in the Communities, universities have developed a strategic vision of the region and its key sectors and met partners that were previously out of their radius for research and innovation activities. Remarkably, the instrument aims at being sustainable over time, allowing stakeholders to build links that will outlive the Community's administrative duration. Indeed, the Communities require the negotiation of a governance system, of measures to deal with changes among participants, as well as of indicators to monitor and evaluate the projects generated within them. All of these are likely to stimulate a long-term view of the Community itself. Furthermore, the indicator-building exercise, represents an interesting example of bottom-up participation in RIS3 monitoring activities and can support HEIs in their measurement of third-mission activities.

However, for RIS3CAT Communities and similar instruments to be effective, some caveats need to be taken into account. Indeed, it appears that stakeholders would have benefitted if clearer guidelines for interaction had been provided by the public sector. These would have made it easier for HEIs and other actors to position themselves strategically within the consortium. In particular, rules for participation should be defined in such a way to generate a framework for collaboration which acknowledges the differences across stakeholders. Universities, SMEs and large firms, have different strengths and financial regimes; as such they can contribute differently to the continuous process of Entrepreneurial Discovery. Such heterogeneity should be better exploited, without limiting cash-short actors. This could be done by engaging stakeholders directly in the design of the instrument, allowing them to provide feedback before launching the calls.

Many of these results can be generalised for the benefit for other EU regions. On the one hand, we have confirmed the importance of addressing the EDP flexibly and identified some mechanisms that have allowed HEIs to adapt to their evolving environment. On the other, we have confirmed the importance for the public sector to provide platforms for interaction and planning, hence deploying the conditions for a continuous EDP. Last but not least, the RIS3CAT Communities offer an interesting case of bottom-up engagement in monitoring activities. It will be interesting to keep observing the development of monitoring indicators as they offer an opportunity to follow RIS3 deployment and, from the HEIs perspective, to codify rigorously third mission activities, going beyond traditional indicators such as number of patents or spin-offs.

To conclude, whilst the road ahead is challenging for HEIs, which face a policy environment that is changing faster than their organizational culture, universities are showing both resilience and leadership in taking up the challenge of being a key actor for local development. The RIS3 approach builds coherently on this evolution and has the potential to leverage it for the benefit of regions and local communities.

References

ACUP (2014), Report Universities of Catalonia. Available at http://www.acup.cat/sites/default/files/universities-catalonia-2014.pdf

E3M Project (2012) 'Green paper: Fostering and measuring "third mission" in higher education institutions'. <http://www.e3mproject.eu/docs/Green%20paper-p.pdf> accessed 11 June 2015.

European Commission (2010), Communication frm the Commission, "Europe 2020. A strategy for smart, sustainable and inclusive growth", COM(2010) 2020 final, CEC, Brussles

European Commission (2011) Supporting growth and jobs – an agenda for modernisation of Europe's higher education system (COM (2011) (567), CEC, Brussels

Generalitat de Catalunya (2014) Estratègia de recerca i innovació per a l'especialització intelligent de Cataluny. Available at http://catalunya2020.gencat.cat/web/.content/85_catalunya_2020/documents/arxius/12_ris3cat_2014.pdf f

Generalitat de Catalunya (2015), Programa Operativo Inversión en Crecimiento y Empleo, FEDER Cataluña 2014-2020, Available ta: http://catalunya2020.gencat.cat/web/.content/85_catalunya_2020/documents/arxius/07_PO_FEDER_CATALUNYA_2014_2020.pdf

Kempton, L., Goddard, J., Edwards, J., Hegyi, F.B. and Elena-Pérez, S. (2013) "Universities and Smart Specialisation", S3 Policy Brief Series No. 03/2013, European Commission Joint Research Centre, Institute for Prospective Technological Studies

Laredo, P. (2007), "Revisiting the third mission of universities: Toward a renewed categorization of university activities?", Higher Education Policy, Vol. 20, pp. 441-456.

OECD (2007) Higher Education and Regions: Globally Competitive, Locally Engaged, OECD, Paris

List of abbreviations

ACUP: Catalan Association of Public Universities

E3M: European Indicators and Ranking Methodology for University Third Mission

EDP: Entrepreneurial Discovery Process

ERDF: European Regional Development Fund

ESIF: European Structural and Investment Funds

HEI: Higher Education Institution

PECTs (Projects for Territorial Specialisation and Competitiveness

RIS3: Regional Smart Specialisation Strategies

RIS3CAT: Catalonia's RIS3 Strategy

SWOT: Strengths, Weaknesses, Opportunities and Threats

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Appendix 1 – Guide-questionnaire for fieldwork – Original Spanish version

Preguntas a los gestores universitarios

a) **Participación en el proceso S3**

- ¿Podría explicar su implicación, como gestor de la universidad, en el proceso de diseño e implementación de la S3de su región? ¿Y la implicación de la institución en su conjunto?
- ¿Hasta qué punto considera que la participación en la definición y/o implementación de S3es una novedad respecto a formas de actuación anteriores?
- Por favor, haga una valoración (destacando tanto los aspectos positivos o negativos) de su experiencia. ¿Cuáles son las expectativas que tiene en el proceso?

b) **Entrepreneurial Discovery Process (EDP)/Proceso de descubrimiento emprendedor (PDE)**

- ¿Está familiarizado con el concepto de EDP?
- ¿En qué actividades de EDP ha participado su universidad? ¿Cuál ha sido su impresión?
- ¿Considera que este concepto se integra en la misión y objetivos estratégicos de su universidad? ¿De qué manera?
- Según su opinión, ¿existe alguna tensión entre los objetivos más territoriales de S3y del EDP y la ambición internacional de la universidad? ¿o son más bien complementarios?
- En base a su conocimiento y experiencia, ¿la participación de la universidad en el EPD ha tenido algún impacto en la definición curricular de los programas docentes universitarios o en los programas de investigación?
- En base a su conocimiento y su experiencia, ¿la participación de la universidad en el EPD ha tenido algún impacto en la forma de evaluar a los profesores/investigadores en su universidad o en la forma en qué deben organizar/computar su tiempo de dedicación?

c) **Participación en las Comunidades RIS3CAT**

- ¿Participa su institución activamente en las comunidades RIS3CAT? ¿En cuáles?
- Describa el rol y la implicación de la universidad en las distintas Comunidades (participante, coordinador/leader de proyecto, observador, etc.).
- ¿Cuál es su rol actual como gestor de la universidad en relación a las comunidades RIS3CAT en las que participa su universidad?
- ¿Ha participado en su conceptualización de alguna manera? En caso afirmativo, ¿podría describir cómo?

- ¿En qué punto de desarrollo están las distintas comunidades RIS3CAT en las que participa su universidad?
    - Definición y diseño
    - Formalización
    - Implementación
    - Evaluación
- ¿Cómo se ha organizado internamente la participación de su universidad en las comunidades RIS3CAT?
    - ¿En base a iniciativas individuales de profesores? ¿A nivel institucional?
    - ¿Cómo se ha comunicado la información y la estrategia de la universidad al respecto entre facultades y departamentos?
    - ¿Cuál ha sido la involucración de la comunidad académica?
    - ¿Hay previstos mecanismos de evaluación y control? En caso afirmativos, ¿cuáles?
- ¿Considera que las comunidades RIS3CAT son una herramienta o iniciativa eficiente para canalizar las fortalezas territoriales en su comunidad autónoma y fomentar el desarrollo territorial? ¿Por qué? (Por favor, destaque tanto aspectos positivos como negativos)
- ¿Considera que las comunidades RIS3CAT están diseñadas en la práctica como un instrumento sostenible para fomentar y mejorar la cooperación entre stakeholders en su territorio? ¿Por qué? (Por favor, destaque tanto aspectos positivos como negativos)
- ¿Cuáles son sus expectativas de futuro respecto a las RIS3CAT y la implicación de su universidad en las mismas?

Appendix 2 – Guide-questionnaire for fieldwork (English translation)

Questions for university managers

a) Participation in the S3process

- Could you explain your involvement, as manager of the university, in the process of designing and implementing the S3in your region? What about the involvement of the institution as a whole?
- To what extent do you believe that the participation in the definition and / or implementation of S3is a novelty compared to previous ways of acting?
- Please make an assessment (highlighting both positive and negative aspects) of your experience. What are your expectations in the process?

b) Entrepreneurial Discovery Process (EDP) / entrepreneurial discovery process (PDE)

- Are you familiar with the concept of EDP?
- In what EDP activities has your university participated? What was your impression?
- Do you think that the EDP concept is integrated in the mission and strategic goals of your university? How?
- In your opinion, is there any tension between the territorial objectives of S3and EDP and the international ambitions of your institution? Or are they rather complementary?
- Based on your knowledge and experience, has the participation in the EDP had some impact on the curricula of teaching or research programs?
- Based on their knowledge and experience, has the involvement of the university in the EPD had some impact on the way of evaluating teachers / researchers at the university or how they should organize / compute their time commitment?

c) Participation in *RIS3CAT Communities*

- Does your institution actively participate in *RIS3CAT Communities*? Which ones?
- Describe the role and involvement of your university in the different Communities (participant, coordinator / project leader, observer, etc.).
- What is your role as manager of the university in relation to *RIS3CAT Communities* in which your university is involved?
- Have you participated in its conceptualization in some way? If so, could you describe how?
- At which development stage are the different *RIS3CAT Communities* in which your university participates?
    - Definition and design

    - Formalization
    - Implementation
    - Evaluation

- How has the university participation in the *RIS3CAT Communities* been internally organised?

    - Was it left to the decision of individual professors? Or was there an institutional approach?
    - How was the communication of the information and strategy organised between faculties and departments?
    - What has been the involvement of the academic community?
    - Are evaluation and control mechanisms planned? If so, which ones?

- Do you think the *RIS3CAT Communities* are an efficient tool or initiative to channel territorial strengths and promote regional development? Why? (Please highlight both positive and negative aspects)
- Do you think the *RIS3CAT Communities* are a sustainable tool to promote and enhance cooperation between stakeholders in its territory? Why? (Please highlight both positive and negative aspects)
- What are your future expectations regarding RIS3CAT and the involvement of your university therein?

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